

## **AMENDMENTS TO THE SPECIFICATION**

On Page 1, please add the following paragraph after the title, and before the heading "*TECHNICAL FIELD*":

### **CROSS-REFERENCE TO RELATED APPLICATION**

This application is based upon and claims the benefit of priority from Japanese Patent Application Nos. 2003-173949, 2003-173922 and 2003-173914, all filed on June 18, 2003, and No. 2003-199229, filed on July 18, 2003, the entire contents of which are incorporated herein by reference.

Please replace the Paragraph beginning on Line 12 of Page 1 and after the heading "*BACKGROUND ART*" with the following paragraph rewritten in amendment format:

In conventional wireless packet communication apparatus, only one radio channel to be used is determined in advance, whether this radio channel is idle or not is detected (carrier sense) before transmission of a data packet, and one data packet is transmitted only if the radio channel is idle. This kind of control allows plural STAs to share a single radio channel by using it during periods that are deviated from each other ((1) ~~IEEE802.11 "MAC and PHY Specification for Metropolitan Area Networks," IEEE802.11, 1998; International Standard ISO/IEC 8802-11 ANSI/EEE Std. 802.11, 1999 edition, Information technology – Telecommunications and information exchange between systems – local and metropolitan area networks – Specific requirements – part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications;~~ (2) Low-powered Data Communication System/Broadband Mobile Access Communication

System (CSMA) standard, ~~ARIB STD-T71~~ ARIB STD-T71 version 1.0, Association of Radio Industries and Businesses, settled in 2000).

In the section titled “*DISCLOSURE OF THE INVENTION*”, please replace the following paragraphs as indicated below.

Please replace the Paragraph beginning on Line 9 of Page 4 with the following paragraph rewritten in amendment format:

~~The invention of claim 1~~ A first aspect of the invention provides a wireless packet communication method for transmitting a data packet between two STAs capable of using plural radio channels, by using a radio channel that is judged idle by carrier sensing, wherein when it is detected by the carrier sensing that plural radio channels are idle at the same time, plural data packets are transmitted simultaneously between the two STAs by using plural idle radio channels.

Please replace the Paragraph beginning on Line 14 of Page 4 with the following paragraph rewritten in amendment format:

~~The invention of claim 2~~ A second aspect of the invention provides a wireless packet communication method for transmitting a data packet between two STAs capable of using plural radio channels, by using a radio channel that is judged idle by carrier sensing, wherein when it is detected by the carrier sensing that plural radio channels are idle at the same time, plural data packets having the same packet time length are generated and plural data packets having the same packet time length are transmitted simultaneously between the two STAs by using plural idle radio channels.

Please replace the Paragraph beginning on Line 21 of Page 4 with the following paragraph rewritten in amendment format:

~~The invention of claim 3~~ A third aspect of the invention provides a wireless packet communication method for transmitting a data packet between two STAs capable of using plural radio channels and setting transmission rates for respective radio channels, by using a radio channel that is judged idle by carrier sensing, wherein when it is detected by the carrier sensing that plural radio channels are idle at the same time, plural data packets having the same packet time length are generated in accordance with transmission rates of plural idle radio channels and plural data packets having the same packet time length are transmitted simultaneously between the two STAs by using plural idle radio channels.

Please replace the Paragraph beginning on Line 4 of Page 5 with the following paragraph rewritten in amendment format:

~~The invention of claim 4~~ A fourth aspect of the invention provides a wireless packet communication method for transmitting a data packet between two STAs capable of using plural radio channels and setting transmission rates for respective radio channels, by using a radio channel that is judged idle by carrier sensing, wherein when it is detected by the carrier sensing that plural radio channels are idle at the same time, transmission rates of plural idle radio channels are set to the same transmission rate, plural data packets having the same packet time length are generated, and plural data packets having the same packet time length are transmitted simultaneously between the two STAs by using plural idle radio channels.

Please replace the Paragraph beginning on Line 12 of Page 5 with the following paragraph rewritten in amendment format:

~~The invention of claim 5 is such that, in claim 4,~~ According to a fifth aspect of the invention, in the fourth aspect of the invention, the transmission rates of the plural idle radio channels are set equal to a lowest one of the transmission rates.

Please replace the Paragraph beginning on Line 14 of Page 5 with the following paragraph rewritten in amendment format:

~~The invention of claim 6~~ A sixth aspect of the invention provides a wireless packet communication method for transmitting a data packet between two STAs capable of using MIMO, by using a radio channel that is judged idle by carrier sensing, wherein when it is detected by the carrier sensing that at least one radio channel is idle, plural data packets having the same packet time length are generated and plural data packets having the same packet time length are transmitted simultaneously between the two STAs by using one idle radio channel and the MIMO.

Please replace the Paragraph beginning on Line 21 of Page 5 with the following paragraph rewritten in amendment format:

~~The invention of claim 7 is such that, in any one of claims 1-5,~~ According to a seventh aspect of the invention, in any one of the first to fifth aspects of the invention, plural data packets having the same packet time length are transmitted simultaneously in a number that is equal to the sum of MIMO numbers of plural,

respective radio channels between the two STAs capable of using plural radio channels and MIMO together by using plural idle radio channels and the MIMO.

Please replace the Paragraph beginning on Line 1 of Page 6 with the following paragraph rewritten in amendment format:

~~The invention of claim 8 is such that, in any one of claims 1-7,~~ According to an eighth aspect of the invention, in any one of the first to seventh aspects of the invention, while the STA itself is performing a transmission on at least one radio channel, the STA selects, from idle radio channels, a radio channel or channels that do not receive influence of leakage power from the radio channel being used for the transmission.

Please replace the Paragraph beginning on Line 5 of Page 6 with the following paragraph rewritten in amendment format:

~~The invention of claim 9 is such that, in any one of claims 1-7,~~ According to a ninth aspect of the invention, in any one of the first to seventh aspects of the invention, while the STA itself is performing a transmission on at least one radio channel, the STA prohibits transmission process including carrier sensing until completion of the transmission.

Please replace the Paragraph beginning on Line 8 of Page 6 with the following paragraph rewritten in amendment format:

~~The invention of claim 10 is such that, in any one of claims 1-5,~~ According to the tenth aspect of the invention, in any one of the first to fifth aspects of the invention, the STA transmits, simultaneously, data packets generated from all

transmission-standby data frames if the number of transmission-standby data frames is smaller than or equal to the number of idle channels, and generates and transmits, simultaneously, data packets whose number is equal to the number of idle channels if the number of transmission-standby data frames exceeds the number of idle channels.

Please replace the Paragraph beginning on Line 14 of Page 6 with the following paragraph rewritten in amendment format:

~~The invention of claim 11 is such that, in any one of claims 1-5, According to~~  
the eleventh aspect of the invention, in any one of the first to fifth aspects of the invention, if the number K of transmission-standby data frames exceeds the number N of idle channels, the STA waits until a relationship  $N \geq K$  is satisfied, all radio channels become idle before the relationship  $N \geq K$  is satisfied, a prescribed time elapses before the relationship  $N \geq K$  is satisfied, or the number or a data size of transmission-standby data frames reaches a prescribed value before the relationship  $N \geq K$  is satisfied, and then generates data packets in a number that is suitable for the number of current idle channels and transmits the generated data packets simultaneously.

Please replace the Paragraph beginning on Line 22 of Page 6 with the following paragraph rewritten in amendment format:

~~The invention of claim 12 is such that, in any one of claims 1-5, According to~~  
the twelfth aspect of the invention, in any one of the first to fifth aspects of the invention, if the number K of transmission-standby data frames is smaller than the

number N of idle channels, the STA waits until a relationship  $N = K$  is satisfied, a prescribed time elapses before the relationship  $N = K$  is satisfied, or the number or a data size of transmission-standby data frames reaches a prescribed value before the relationship  $N = K$  is satisfied, and then generates and transmits, simultaneously, plural data packets.

Please replace the Paragraph beginning on Line 3 of Page 7 with the following paragraph rewritten in amendment format:

~~The invention of claim 13 is such that, in claim 6,~~ According to a thirteenth aspect of the invention, in the sixth aspect of the invention, the STA transmits, simultaneously, data packets generated from all transmission-standby data frames if the number of transmission-standby data frames is smaller than or equal to a MIMO number, and generates data packets whose number is equal to the MIMO number and transmits the generated data packets simultaneously if the number of transmission-standby data frames exceeds the MIMO number.

Please replace the Paragraph beginning on Line 9 of Page 7 with the following paragraph rewritten in amendment format:

~~The invention of claim 14 is such that, in claim 7,~~ According to a fourteenth aspect of the invention, in the seventh aspect of the invention, the STA transmits, simultaneously, data packets generated from all transmission-standby data frames if the number of transmission-standby data frames is smaller than or equal to the number of simultaneous transmissions that is the sum of the MIMO numbers of the plural, respective radio channels, and generates data packets whose number is equal to the number of simultaneous transmissions and transmits the generated data

packets simultaneously if the number of transmission-standby data frames exceeds the number of simultaneous transmissions.

Please replace the Paragraph beginning on Line 16 of Page 7 with the following paragraph rewritten in amendment format:

~~The invention of claim 15 is such that, in claim 7,~~ According to the fifteenth aspect of the invention, in the seventh aspect of the invention, if the number K of transmission-standby data frames exceeds the number of simultaneous transmissions T that is the sum of the MIMO numbers of the plural, respective radio channels, the STA waits until a relationship  $T \geq K$  is satisfied, all radio channels become idle before the relationship  $T \geq K$  is satisfied, a prescribed time elapses before the relationship  $T \geq K$  is satisfied, or the number or a data size of transmission-standby data frames reaches a prescribed value before the relationship  $T \geq K$  is satisfied, and then generates data packets in a number that is suitable for the current number of simultaneous transmissions and transmits the generated data packets simultaneously.

Please replace the Paragraph beginning on Line 25 of Page 7 with the following paragraph rewritten in amendment format:

~~The invention of claim 16 is such that, in claim 7,~~ According to the sixteenth aspect of the invention, in the seventh aspect of the invention, if the number K of transmission-standby data frames is smaller than the number of simultaneous transmissions T that is the sum of the MIMO numbers of the plural, respective radio channels, the STA waits until a relationship  $T = K$  is satisfied, a prescribed time



elapses before the relationship  $T = K$  is satisfied, or the number or a data size of transmission-standby data frames reaches a prescribed value before the relationship  $T = K$  is satisfied, and then generates and transmits, simultaneously, plural data packets.

Please replace the Paragraph beginning on Line 7 of Page 8 with the following paragraph rewritten in amendment format:

~~The invention of claim 17 is such that, in claim 7,~~ According to the seventeenth aspect of the invention, in the seventh aspect of the invention, the STA selects, on the basis of at least one of the number of idle channels, a MIMO number of each radio channel, and the number of transmission-standby data frames, one of a first mode in which a single radio channel is used and MIMO is not used, a second mode in which a single radio channel and MIMO are used, a third mode in which plural radio channels are used and MIMO is not used, and a fourth mode in which plural radio channels and MIMO are used.

Please replace the Paragraph beginning on Line 13 of Page 8 with the following paragraph rewritten in amendment format:

~~The invention of claim 18~~ An eighteenth aspect of the invention provides a wireless packet communication apparatus for transmitting a data packet between two STAs capable of using plural radio channels, by using a radio channel that is judged idle by carrier sensing, comprising transmission buffer block, channels' occupation status analyzing block, data packet generating block, packet switching block, and data frame management block.

Please replace the Paragraph beginning on Line 17 of Page 9 with the following paragraph rewritten in amendment format:

~~The invention of claim 19 further includes, in claim 18,~~ A nineteenth aspect of the invention further includes in the eighteenth aspect of the invention, MIMO block that transmits plural independent signals simultaneously on the respective radio channels.

Please replace the Paragraph beginning on Line 19 of Page 9 with the following paragraph rewritten in amendment format:

~~The invention of claim 20 is such that, in claim 18 or 19,~~ According to a twentieth aspect of the invention, in the eighteenth or nineteenth aspect of the invention, the data frame management block performs a control for generating plural data packets having the same packet time length from one or plural data frames when it is detected by the carrier sensing that plural radio channels are idle at the same time.

Please replace the Paragraph beginning on Line 23 of Page 9 with the following paragraph rewritten in amendment format:

~~The invention of claim 21 is such that, in claim 18 or 19,~~ According to a twenty-first aspect of the invention, in the eighteenth or nineteenth aspect of the invention, the two STAs include block capable of setting transmission rates for respective radio channels, and that the data frame management block performs a control for generating plural data packets having the same packet time length from one or plural data frames in accordance with transmission rates of plural idle radio

channels when it is detected by the carrier sensing that plural radio channels are idle at the same time.

Please replace the Paragraph beginning on Line 4 of Page 10 with the following paragraph rewritten in amendment format:

~~The invention of claim 22 is such that, in claim 18 or 19,~~ According to the twenty-second aspect of the invention, in the eighteenth or nineteenth aspect of the invention, the two STAs include block capable of setting transmission rates for respective radio channels, and that the data frame management block performs controls for setting transmission rates of plural idle radio channels to the same transmission rate and for generating plural data packets having the same packet time length from one or plural data frames when it is detected by the carrier sensing that plural radio channels are idle at the same time.

Please replace the Paragraph beginning on Line 10 of Page 10 with the following paragraph rewritten in amendment format:

~~The invention of claim 23 further includes, in claim 18 or 19,~~ A twenty-third aspect of the invention further includes, in the eighteenth or nineteenth aspect of the invention, block that, while its own station is performing a transmission on at least one radio channel, selects, from idle radio channels, a radio channel or channels that do not receive influence of leakage power from the radio channel being used for the transmission.

Please replace the Paragraph beginning on Line 14 of Page 10 with the following paragraph rewritten in amendment format:

~~The invention of claim 24 further includes, in claim 18 or 19, A twenty-fourth~~  
aspect of the invention further includes, in the eighteenth or nineteenth aspect of the  
invention, block that, while its own station is performing a transmission on at least one radio channel, prohibits transmission process including carrier sensing until completion of the transmission.

Please replace the Paragraph beginning on Line 17 of Page 10 with the following paragraph rewritten in amendment format:

~~The invention of claim 25 is such that, in claim 18 or 19, According to a~~  
twenty-fifth aspect of the invention, in the eighteenth or nineteenth aspect of the  
invention, the data frame management block includes means that selects, on the basis of at least one of the number of idle channels, a MIMO number of each radio channel, and the number of transmission-standby data frames, one of a first mode in which a single radio channel is used and MIMO is not used, a second mode in which a single radio channel and MIMO are used, a third mode in which plural radio channels are used and MIMO is not used, and a fourth mode in which plural radio channels and MIMO are used.

On page 11, please add the following paragraph beginning on line 2 and after the heading *"BRIEF DESCRIPTION OF THE DRAWINGS"*:

The nature, principle, and utility of the invention will become more apparent from the following detailed description when read in conjunction with the

accompanying drawings in which like parts are designated by identical reference numbers, in which:

On Page 12, please add the following paragraph beginning on Line 10 and before the heading "*INDUSTRIAL APPLICABILITY*":

The invention is not limited to the above embodiments and various modifications may be made without departing from the spirit and scope of the invention. Any improvement may be made in part or all of the components.